

IN THE CLAIMS:

1. (Currently Amended) A line light irradiation device comprising:

multiple light emitting parts each of which is provided with an optical fiber band and a columnar lens wherein the optical fiber band comprises a light irradiating part formed by arranging light leading out end portions of multiple optical fibers in a straight line or in multiple
5 straight lines and a binding part formed by binding light introducing end portions of the optical fibers and portions of the multiple optical fibers between the light irradiating part and the binding part are formed as a sheet form and the columnar lens is arranged to extend along a direction of the straight line in front of the light irradiating part in pairs, and that irradiate line light that converges into the straight line; and

10 multiple light sources that introduce light into the multiple optical fibers; and

a holding body that is arranged to face to an object on which the straight line light is to be irradiated, on which a monitoring bore is arranged to penetrate in order to monitor the object, the holding body holds the light emitting parts so that each optical axis of the line light irradiated from each of the light emitting parts crosses on a predetermined straight line, wherein

15 the light emitting parts are of a same form and predetermined lengths of the

multiple optical fibers of the optical fiber band are made to be different so that the binding part is located to deviate to either one of two directions with respect to a center line of the light irradiating part and two identical optical fiber bands are mounted with their front and back sides turned upside down in the holding body so that the location of each adjacent binding part is
20 different and the multiple light sources are arranged along the direction of the straight line on the holding body.

2. (Previously Presented) The line light irradiation device described in claim 1, wherein each light emitting part is arranged on the holding body so that the optical axis of the line light irradiated from each light emitting part is arranged radially viewed from the above-mentioned direction of the line.

3. (Previously Presented) The line light irradiation device described in claim 1, wherein the columnar lens is arranged generally on a straight line viewed from the above-mentioned direction of the line.

4. (Previously Presented) The line light irradiation device described in claim 1, wherein the light irradiating part further comprises a pair of pinching plates and the pinching plates hold the light leading out end portions of the multiple optical fibers by pinching them between the pair of pinching plates.

5.-6. (Cancelled)

7. (Previously Presented) The line light irradiation device described in claim 1, wherein the light source that introduces light into the optical fibers is a power LED that continuously flows current greater than or equal to 200mA.

8. (Previously Presented) The line light irradiation device described in claim 1, wherein a distance between the light irradiating part and the columnar lens is adjustable.

9. (Currently Amended) The line light irradiation device described in claim 1, wherein the light emitting part is ~~rotatably~~ rotatable about a rotational axis that is parallel to the direction of the straight line and the rotational angle at a fixed position.

10. (Previously Presented) The line light irradiation device described in claim 1, wherein the multiple light irradiating parts are arranged serially along the above-mentioned direction of the straight line.

11. (Original) The line light irradiation device described in claim 10 wherein each length of the light emitting part is identical.

12. (Previously Presented) The line light irradiation device described in claim 10, wherein a light source is arranged for each of the light irradiating parts individually.

13. (Currently Amended) A line light irradiation device comprising:

[[a]] multiple light source sources;

multiple light emitting parts, each of which is provided with a light irradiating part where multiple optical fibers with light introducing end portions are bundled into a substantial cylindrical form and aligned with the multiple light source sources, and arranged in a line with light leading out end portions of the respective multiple optical fibers for forming a straight line of a predetermined width, and portions of the multiple optical fibers between the light introducing end portions and the light leading out portions are formed as a sheet form;

a plurality of columnar lens, each arranged to extend along a direction of a respective line in front of each of the light irradiating parts, and to converge light onto the straight line;

a holding body that is arranged to align with an object on which the line light is to be irradiated, including a monitoring bore arranged to enable a monitoring of the object, the

holding body holds the light emitting parts so that each optical axis of light irradiated from each
15 of the light emitting parts crosses at a predetermined straight line, and

the multiple light emitting parts are of a same form, and

binding parts that are formed by binding each of the respective light introducing
end portions of the optical fibers in the substantially cylindrical form, wherein

each length of ~~all or a part of~~ the optical fibers of all or a part of the optical fibers

20 are different so that the binding part is located to deviate to either one of two directions in a
plane view with respect to a center line of the light irradiating part and the respective adjacent
binding parts are configured to alternate in deviation to enable adjacent optical fibers to spread
into linear arrays that are turned upside down from each other to provide a stacked compact
configuration, and

25 the multiple light sources are arranged along the direction of the straight line on
the holding body.

14. (Currently Amended) The line light irradiation device described in claim 13
wherein the light source ~~is~~ sources are a plurality of light emitting diodes.

15. (Cancelled)

16. (Currently Amended) The ~~lighting~~ line light irradiation device described in claim
[[18]] 13 further ~~including~~ includes a cylindrical rod lens aligned with each ~~of the~~ light emitting
[[ends]] end of the optical fibers fiber of each of the multiple light emitting parts to form the line
of light on the predetermined surface.

17. (Currently Amended) The lighting line light irradiation device described in claim
[[16]] 13 where the light source is a plurality of light emitting diodes.

18. (Previously Presented) The line light irradiation device of claim 13 where the
holding body has a rectangular body with a plurality of separate light sources, one light source
for each multiple light emitting part, at least two multiple light emitting parts are connected to
opposite ends of the rectangular body and the light leading out end portions are positioned to
5 extend parallel to the respective ends of the rectangular body.

19. (Previously Presented) The line light irradiation device of claim 18 wherein the
holding body includes a bracket member mounting at least one of the binding parts, the bracket
member is pivotally mounted in the holding body to enable a rotational movement of the
mounted binding part to move the line of light of the mounted binding part from a position
5 exterior of the rectangular body.

20. (New) A line light irradiation device comprising:

a light source;

a holding body;

two optical fiber bundles each formed by binding light introducing end portions of
a plurality of optical fibers together in a cylindrical shape with a binding part and arranging light
irradiating end portions of the plurality of optical fibers adjacent to each other and spread into a
sheet form, the two optical fiber bundles are positioned parallel and adjacent to each other within
the holding body and operatively positioned to receive light from the light source, each
respective binding part of the two optical fiber bundles is positioned off center with respect to a

mutual center line of the respective light irradiating end portions of the two optical fiber bundles, each respective binding part of the two optical fiber bundles is positioned on an opposite side of the mutual center line with respect to the other optical fiber bundle, and the respective plurality of optical fibers of the two optical fiber bundles bend in opposite vertical directions and overlap with each other at a portion between the respective light introducing end portions and the respective light irradiating end portions of the two optical fiber bundles; and

means for focusing a line of light irradiated from each respective light irradiating end portion of the two optical fiber bundles consisting of a single type of three-dimensional cylindrical columnar lens with a cross-section of a circular form.

21. (New) The line light irradiation device of Claim 20 wherein the columnar lens is a three-dimensional cylindrical column with a cross-section of a half-circular form.

22. (New) The line light irradiation device of Claim 20 wherein the columnar lens is a Fresnel lens.